



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/327,351	06/05/1999	STANISLAV I. IONOV	PD-970411	5316

20991 7590 05/08/2002

HUGHES ELECTRONICS CORPORATION
PATENT DOCKET ADMINISTRATION
BLDG 001 M/S A109
P O BOX 956
EL SEGUNDO, CA 902450956

EXAMINER

PHAN, HANH

ART UNIT	PAPER NUMBER
----------	--------------

2633

DATE MAILED: 05/08/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.
09/327,351

Applicant(s)
IONOV et al

Examiner
Hanh Phan

Art Unit
2633



-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on Jun 5, 1999.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above, claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are objected to by the Examiner.
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

- 13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).
- a) ☐ All b) ☐ Some* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- *See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

- 15) ☒ Notice of References Cited (PTO-892) 18) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 16) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 19) ☐ Notice of Informal Patent Application (PTO-152)
- 17) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s). _____ 20) ☐ Other: _____

Art Unit: 2633

DETAILED ACTION

1. In claim 1, lines 13 and 14, the phrase “ said first satellite configured to communicate ” should be changed to --said first subset of satellites are configured to communicate--.

In claim 4, line 2, the phrase “ said reconfigurable transmitter ” should be changed to --said reconfigurable optical transmitter--.

In claim 6, line 2, the phrase “ said reconfigurable receiver ” should be changed to --said reconfigurable optical receiver--.

In claim 6, the phrase “ a Fabri-Perot filter ” should be changed to --a Fabry-Perot filter--.

In claim 11, the phrase “ first subset of said plurality ” should be changed to -- first subset of said plurality of satellites--.

Specification

2. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required:

In claim 6, the limitation “ said reconfigurable receiver is one from the group consisting of a Fabry-Perot filter, a wavelength division multiplexer, and a fiber grating-based optical switch ” was not described in the specification.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Art Unit: 2633

4. Claim 13 recites the limitation "said communication table" in line 2. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-3 and 7-9 are rejected under 35U.S.C.103(a) as being unpatentable over Montpetit (U.S.Patent number 6,366,761) in view of Rockwell (U.S.Patent number 6,327,063).

Regarding claim 1, referring to Figure 2, Montpetit discloses a satellite constellation comprising: a plurality of satellites (i.e., satellites 13a, 13b, 13c, ..., 13y)(Fig. 2, col. 4, lines 27-31), each of said satellites (13a, 13b, 13c, ..., 13y) having an RF ground link for communicating with a ground station (16, 18)(col. 4, lines 30-36) and a laser inter-satellite link (col. 12, lines 42-44) for communication with at least one of the plurality of satellites, a plurality of satellites(13a, 13b, 13h, 13m, 13l, 13f, 13g)(Figure 2) arranged to have a first subset of satellites, said first subset of satellites configured to communicate, and a plurality of satellites (13b, 13c, 13i, 13n, 13m, 13g, 13h)(Figure 2) arranged to have a second subset of satellites having at least one different satellite than that of said first subset, said second subset of satellites are configured to communicate (col. 1, lines 40-50, col. 4, lines 27-64).

Art Unit: 2633

Montpetit differs from claim 1 in that does not disclose a satellite having a reconfigurable optical transmitter and reconfigurable optical receiver for sending and receiving data streams and for optical inter-satellite link, each reconfigurable optical transmitter having a first optical carrier associated therewith and a reconfigurable optical receiver. However, Rockwell discloses each satellite having a reconfigurable optical transmitter and reconfigurable optical receiver for sending and receiving data streams and for optical inter-satellite link, each reconfigurable optical transmitter having a first optical carrier associated therewith and a reconfigurable optical receiver (Figure 1, column 1, lines 5-8, and lines 12-45, column 2, lines 6-15, column 5 lines 16-18 and lines 59-64). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the satellite having a reconfigurable optical transmitter and reconfigurable optical receiver as taught by Rockwell in the system of Montpetit in order to reduce power consumption, weight, cost, the interference between the signals, and eliminating mechanical motion of optical elements (col. 2, lines 25-28).

Regarding claim 2, Montpetit further discloses each of said plurality of satellites comprises a communications table (95)(Fig. 10 of Montpetit, col. 12, lines 21-65).

Regarding claim 3, Montpetit further discloses the communications table has plurality of routes for communicating between satellites in said first subset (Fig. 10 Montpetit, col. 12, lines 21-65).

Regarding claim 7, Montpetit further discloses the satellites are in low earth orbit (col 4 of Montpetit, lines 27-64).

Art Unit: 2633

Regarding claim 8, it would have been obvious to obtain satellites are in medium earth orbit in order to provide a low altitude and the data signals communication via the satellites will do not travel much time in transmission, and reduce power consumption and costs.

Regarding claim 9, Montpetit further discloses the first and second subsets are aligned with a landmass (Figs. 2 and 3 of Montpetit).

7. Claim 4 is rejected under 35U.S.C.103(a) as being unpatentable over Montpetit (U.S.Patent number 6,366,761) in view of Rockwell (U.S.Patent number 6,327,063) and further in view of Wade (U.S.Patent number 6,243,513).

Regarding claim 4, the combination of Montpetit and Rockwell differs from claim 4 in that it does not disclose the reconfigurable transmitter comprises an array of laser diodes. However, Wade discloses an array of laser diodes (28)(Figure 3a, from column 10, line 64 to column 11, line 9). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the an array of laser diodes as taught by Wade in the system of Montpetit and Rockwell in order to reduce the channel crosstalk and signal loss.

8. Claims 5 and 10 are rejected under 35U.S.C.103(a) as being unpatentable over Montpetit (U.S.Patent number 6,366,761) in view of Rockwell (U.S.Patent number 6,327,063) and further in view of Kintis et al (U.S.Patent number 5,661,582).

Regarding claim 5, the combination of Montpetit and Rockwell differs from claim 5 in that it does not disclose an optical transmitter is tunable to generate a plurality of wavelengths. However, Kintis discloses an optical transmitter is tunable to generate a plurality of wavelengths

Art Unit: 2633

(Figure 2, column 4, lines 45-67). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the optical transmitter is tunable to generate a plurality of wavelengths as taught by Kintis in the system of Montpetit and Rockwell in order to increase bandwidth capabilities, increase versatility, decrease weight and size of the satellite, decrease power consumption and launch costs and reduce the interference between the signals (column 1, lines 64-67).

Regarding claim 10, Montpetit further discloses the subset comprises seven satellites (Fig. 2 of Montpetit). Although Montpetit does not specifically disclose the seven satellites using three optical carriers. However, as evidenced by Kintis, providing satellites using plurality of optical carriers (Figure 2 of Kintis). Therefore, it would have obvious to one of ordinary skill in the art at the time the invention was made to incorporate the satellites using plurality of optical carriers as taught by Kintis in the system of of Montpetit and Rockwell in order to allow allocating transmission capacity in the LEO satellite data communication network and reduce the interference between the signals.

9. Claims 11-13 and 16-20 are rejected under 35U.S.C.103(a) as being unpatentable over Montpetit (U.S.Patent number 6,366,761) in view of Kintis et al (U.S.Patent number 5,661,582).

Regarding claim 11, referring to Figure 2, Montpetit discloses a global communications system comprising: a plurality of satellites spaced about the earth, first subset of said plurality of satellites (i.e., satellites 13a, 13b, 13c, ..., 13y)(Fig. 2, col. 4, lines 27-31) forming a local area network over a landmass.

Art Unit: 2633

Montpetit differs from claim 11 in that he does not disclose a subset of satellites having a first plurality of optical carriers assigned thereto for intercommunication and a second plurality of optical carriers assigned for communicating with other satellites outside of the subset. However, as evidenced by Kintis, providing satellites having a first plurality of optical carriers assigned thereto for intercommunication and a second plurality of optical carriers assigned for communicating with other satellites outside of the subset (Figure 2, column 4, lines 1-62). Therefore, it would have obvious to one of ordinary skill in the art at the time the invention was made to incorporate the satellites as taught by Kintis in the system of of Montpetit in order to reduce the interference between the signals.

Regarding claim 12, Montpetit further discloses each of said plurality of satellites comprises a communications table (95)(Fig. 10 of Montpetit, col. 12, lines 21-65).

Regarding claim 13, Montpetit further discloses the communication table has plurality of paths for each path for communication between of said first subset(Fig. 10 of Montpetit, col. 12, lines 21-65).

Regarding claim 16, Montpetit differs from claim 16 in that he does not disclose an optical transmitter is tunable to generate a plurality of wavelengths. However, Kintis discloses an optical transmitter is tunable to generate a plurality of wavelengths (Figure 2, column 4, lines 45-67). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the optical transmitter is tunable to generate a plurality of wavelengths as taught by Kintis in the system of Montpetit in order to increase bandwidth capabilities, increase

Art Unit: 2633

versatility, decrease weight and size of the satellite, decrease power consumption and launch costs and reduce the interference between the signals (column 1, lines 64-67).

Regarding claim 17, referring to Figure 2, Montpetit discloses a method of communicating within a satellite communications comprising the steps of:

- deploying a plurality of satellites (Fig. 2);
- grouping a first subset of the plurality of satellites into a first local area network (Fig.2);
- forming a plurality of routes between the satellites in the first local area network (col. 12, lines 21-65).

Montpetit differs from claim 17 in that he does not disclose assigning an optical carrier for each route. However, as evidenced by Kintis, providing assigning an optical carrier for each route (Figures 2 and 3, column 4, lines 1-62, and column 6, lines 10-59). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the assigning an optical carrier for each route as taught by Kintis in the system of Montpetit in order to increase bandwidth capabilities, increase versatility, decrease weight and size of the satellite, decrease power consumption and launch costs and reduce the interference between the signals (column 1, lines 64-67).

Regarding claim 18, Montpetit further discloses the steps of forming a second local area network by grouping a second subset of the plurality of satellites and interconnecting the first local area network and the second local area network to form a wide area network (Fig. 2 of Montpetit, col. 1, lines 40-50, col. 4, lines 27-64).

Art Unit: 2633

Regarding claims 19 and 20, the combination of Montpetit and Kintis discloses wherein the step of assigning an optical carrier comprises the step of obtaining the optical carrier and route from a respective optical wavelength selector and communication table (Figs 2 and 3 of Montpetit and and Figs 3 and 4 of Kintis) and the step of assigning comprises the step of reusing the optical carriers.

10. Claim 14 is rejected under 35U.S.C.103(a) as being unpatentable over Montpetit (U.S.Patent number 6,366,761) in view of Kintis et al (U.S.Patent number 5,661,582) and further in view of Rockwell (U.S.Patent number 6,327,063).

Regarding claim 14, the combination of Montpetit and Kintis differs from claim 14 in that it does not disclose a satellite having a reconfigurable optical transmitter and reconfigurable receiver. However, Rockwell discloses each satellite having a reconfigurable transmitter and reconfigurable receiver (Figure 1, column 1, lines 5-8, and lines 12-45, column 2, lines 6-15, column 5 lines 16-18 and lines 59-64). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the satellite having a reconfigurable transmitter and reconfigurable receiver as taught by Rockwell in the system of Montpetit and Kintis in order to reduce power consumption, weight, cost, the interference between the signals, and eliminating mechanical motion of optical elements (col. 2, lines 25-28).

10. Claim 15 is rejected under 35U.S.C.103(a) as being unpatentable over Montpetit (U.S.Patent number 6,366,761) and Kintis et al (U.S.Patent number 5,661,582) in view of

Art Unit: 2633

Rockwell (U.S.Patent number 6,327,063) and further in view of Wade (U.S.Patent number 6,243,513).

Regarding claim 15, the combination of Montpetit, Kintis, and Rockwell differs from claim 15 in that it does not disclose the reconfigurable transmitter comprises an array of laser diodes. However, Wade discloses an array of laser diodes (28)(Figure 3a, from column 10, line 64 to column 11, line 9). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the an array of laser diodes as taught by Wade in the system of Montpetit, Kintis, and Rockwell in order to reduce the channel crosstalk and signal loss.

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Carlson (U.S.Patent number 6,304,354) teaches laser satellite communication system.

Franchini (U.S.Patent number 4,928,317) teaches radio-optical transmission system.

Zancho et al (U.S.Patent number 6,208,625) teaches multi-tier satellite network.

Brock et al (U.S.Patent number 5,870,216) teaches optical broadcast switch.

Dreischer et al (U.S.Patent number 6,219,617) teaches LEO networks.

Wainfan et al (U.S.Patent number 6,339,707) teaches satellite based network.

Conclusion

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hanh Phan whose telephone number is (703)306-5840.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

Art Unit: 2633

supervisor, Jason Chan, can be reached on (703)305-4729. The fax phone number for the organization where this application or proceeding is assigned is (703)872-9314.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)305-4700.



JASON CHAN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600